1/2   038
TITLE--DEVICE FOR STUDYING PHOTOGRAPHIC PROPERTIES OF PHOTOPOLYMERIC
LAYERS -U-

UNCLASSIFIED   PROCESSING DATE--13NOV70

AUTHOR-(05)-FRUNZE, N.K., YASHIN, V.P., BRAZHNIKOV, YE.M., RUSSIYAN,
YE.K., SEMENOVAZHUKOVA, M.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. NAUCH. PRIKL. FOTOGR. KINEMATOGR. 1970, 15(2), 143-5

DATE PUBLISHED------70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--POLYMER, POLYPROPYLENE, PLASTIC FILM, UV RADIATION,
POLYACRYLATE RESIN, ACETATE, PHOTOGRAPHIC PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1423

STEP NO--UR/0077/70/015/002/0143/0145

CIRC ACCESSION NO--AP0116870

UNCLASSIFIED

CIRC ACCESSION NO--AP0116870

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. WAS DESIGNED FOR DETG. THE
SENSITOMETRIC CHARACTERISTICS OF PHOTOPOLYMERS. THE SAMPLE WAS PLACED
BETWEEN THE BASE OF A FRAME AND AN ELASTIC TRANSPARENT FILM MADE OF
POLYPROPYLENE. THE SPACE BETWEEN THE FRAME AND THE FILM WAS EVACUATED
SO THAT THE FILM WAS TIGHTLY PRESSED TO THE SAMPLE AND THE SAMPLE TO THE
BASE OF THE FRAME THAT WAS THERMOSTATED. A PARALLEL UV RADIATION BEAM
OF DIAM. 100 MM WAS USED SO THAT 70 TIMES 70 MM SAMPLES COULD BE TESTED.
POLYACRYLATES WERE EXAMD. BY COATING THEM ON A TRANSPARENT TRIACETATE
SUBSTRATE TO A THICKNESS OF 50 MU. FACILITY: INST. KHIM. FIZ.,
MOSCOW, USSR.

UNCLASSIFIED

1/2   015   UNCLASSIFIED   PROCESSING DATE--16OCT70

TITLE--INTEGRAL OF BIPOLAR MOMENTS IN CELESTIAL MECHANICS -U-

AUTHOR-(02)-RADZIYEVSKIY, V.V., BRAZHNIKOVA, E.F.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ASTRONOMICHESKIY ZHURNAL, VOL. 47, NO. 1, 1970, PP.
   211-216
DATE PUBLISHED-------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS, PHYSICS

TOPIC TAGS--CELESTIAL MECHANICS, THREE BODY PROBLEM, PARTICLE MOTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0738   STEP NO--UR/0033/70/047/001/0211/0216

CIRC ACCESSION NO--AP0110462
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0110462

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS PROPOSED FOR REDUCING THE ORDER OF THE PROBLEM OF N BODIES BY USING THE INTEGRAL OF AREAS RELATIVE TO A FICTITIOUS N PLUS 1 BODY WITH A ZERO MASS. IT IS SHOWN IN THE EXAMPLE OF THE TWO BODY PROBLEM THAT THE USE OF SUCH AN INTEGRAL CAN REDUCE THE ORDER OF THE PROBLEM BY TWO UNITS. THE AUTHORS INTRODUCE THE CONCEPT OF THE INTEGRAL OF BIPOLAR MOMENTS, EQUAL TO THE PRODUCT OF THE KINETIC MOMENTS OF A PARTICLE RELATIVE TO TWO POLES. THE ARTICLE GIVES AN EXAMINATION OF A CASE WHEN THESE POLES ARE BODIES WITH FINITE MASSES IN THE RESTRICTED THREE BODY PROBLEM AND IN THE PROBLEM OF TWO FIXED CENTERS. IN THE LATTER CASE THE INTEGRAL OF BIPOLAR MOMENTS IS EASILY USED IN SPHERICAL COORDINATES. IT IS PROPOSED THAT THE SURFACE OF ZERO MOMENTS BE USED IN A QUALITATIVE ANALYSIS OF MOTION. IN A FUTURE ARTICLE THE AUTHORS WILL EXAMINE SOME EXAMPLES OF THE PRACTICAL USE OF THE INTEGRAL OF BIPOLAR MOMENTS IN THE PROBLEM OF TWO FIXED CENTERS AND THE POSSIBILITY OF NARROWING THE REGION OF ACTUAL MOTIONS OF THE PARTICLE WILL BE INVESTIGATED.   FACILITY: GOR'KIY STATE UNIVERSITY.

UNCLASSIFIED

A69-38046 #

ACCELERATION OF THE GALACTIC MOTION OF STARS (OB USKORENII GALAKTICHESKOGO DVIZHENIIA ZVEZD).

E. F. Brazhnikova, M. M. Dagaev, and V. V. Radzievskii (Moskovskii Gosudarstvennyi Pedagogicheskii Institut, Moscow; Gor'kovskii Gosudarstvennyi Pedagogicheskli Institut, Gorki, USSR).

Derivation of formulas for determining the photogravitational apex acceleration of a hot star on the basis of the difference between its apex and antapex brightness. It is found that the apex force of B-stars agrees with the estimate of Agekian (1958) when the density of the dust medium is of the order of 10^{-25} g/cu cm. The constant magnitude and direction of the principal component of the apex force is noted. It is shown that this component is responsible for a secular increase in the eccentricity of galactic orbits and for stellar velocity dispersion.
V.Z.

1943   0354

CHEMICAL STUDIES ON SIBIROMYCIN, AN ANTITUMOR ANTIBIOTIC

M. G. Brazhnikova, I. N. Kovsharova, N. V. Konstantinova, A. S. Mezentsev, V. V. Proshlyakova, I. B. Tolstykh

Institute for New Antibiotics of USSR Academy of Medical Sciences, Moscow

A new antibiotic named sibiromycin was isolated. It has the following empirical formula: $C_{24-25}H_{33-35}N_3O_{6-7}$, $\lambda_{max}^{CH_3OH}$. 230 and 310 mμ. Sibiromycin possesses amphoteric properties, pKa 7.5 (in 75 per cent ethanol). It contains 1 amine, 3 C-methyl and 2-acetylating groups. A crystalline sulfur containing derivative with a composition of $C_{24-25}H_{33-35}N_3SO_{6-9}$ and a melting point of 203°. was prepared. The ultraviolet spectrum is identical to that of an antibiotic, $[\alpha]_Д^{20}$ 100±2° (c. 0.15, DMPhA).

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REEL/FRAME
19820428

2 pc

A NEW SPECIES OF MICROMONOSPORA PRODUCING
MANNOSIDOSTREPTOMYCIN

Gauze, G. F.; Brazhnikova, M. G.; Sveshnikova, M. A.
Ukholina, R. S.; Nechayeva, N. P.

Institute for New Antibiotics, Academy of Medical Sciences of the USSR, Moscow

Two cultures (1370 and 1575) of Micromonospora were isolated from a sample of tropical soil. The stains are described as a new species designated as Micromonospora pallida sp. nov. M. pallida differs from other species by the absence of the mycelium coloration and an ability to form well developed non-sporulating aerial mycelium on certain media. Antibiotic mannosidostreptomycin was isolated from the culture fluid of strain 1575.

D.R.

6

1/2   009   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--STUDIES ON CARBOHYDRATE COMPOSITION OF RUBOMYCIN B -U-

AUTHOR-(04)-FEDOROVA, G.B., BRAZHNIKOVA, M.G., MEZENTSEV, A.S.,
KSHEPINSKIY, I.
COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 5, PP 403-406

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARBOHYDRATE, ANTIBIOTIC/(U)RUBOMYCIN C ANTIBIOTIC,
(U)RUBOMYCIN B ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0153   STEP NO--UR/0297/70/015/005/0403/0406

CIRC ACCESSION NO--AP0114549
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0114549
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRIDESOXYSUGAR (C SUB6 H SUB12 O
SUB3), A CARBOHYDRATE FRAGMENT, POSSIBLY IDENTICAL WITH RODINOSE,
RESPONSIBLE FOR THE DIFFERENCE BETWEEN RUBOMYCINS B AND C, WAS ISOLATED
FROM RUBOMYCIN B (A COMPONENT OF RUBOMYCIN COMPLEX).   FACILITY:
INSTITUTE FOR NEW ANTIBIOTICS OF ACADEMY OF MEDICAL SCIENCES OF THE
USSR, MOSCOW.   FACILITY: INSTITUTE FOR ORGANIC CHEMISTRY AND
BIOCHEMISTRY OF ACADEMY OF SCIENCES OF CHECHOSLOVAKIA.

UNCLASSIFIED

1/2   014   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--PRODUCTION OF A NEW ANTIBIOTIC, CHALCIDIN BY MICROMONOSPORA CHALCEA
 -U-
AUTHOR-(05)-GAUZE, G.F., BRAZHNIKOVA, M.G., SHORIN, V.A., MAKSIMOVA, T.S.,
  OLKHOVATOVA, O.L.
COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 6, PP 483-486

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STAPHYLOCOCCUS INFECTION, ANTIBIOTIC, SOIL BACTERIOLOGY,
  MOUSE/(U)CHALCIDIN ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1830   STEP NO--UR/0297/70/015/006/0483/0486

CIRC ACCESSION NO--AP0125441
                    UNCLASSIFIED

2/2   014   UNCLASSIFIED   PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0125441
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE SCREENING PROGRAM FOR NEW
  ANTIBIOTICS A STRAIN DESIGNATED AS MICROMONOSPORA CHALCEA 845 WAS
  ISOLATED FROM A SOIL SAMPLE TAKEN IN A DISTRICT NEAR MOSCOW. A NEW
  ANTIBIOTIC OF POLYPEPTIDE NATURE NAMED CHALCIDIN WAS ISOLATED FROM THE
  CULTURE FLUID OF THE STRAIN. CHALCIDIN HAD A SLIGHT CHEMOTHERAPEUTIC
  EFFECT WITH RESPECT TO STAPHYLOCUCCAL INFECTIONS IN EXPERIMENTS ON MICE.
        FACILITY: INSTITUTE FOR NEW ANTIBIOTICS, ADACEMY OF MEDICAL
  SCIENCES OF THE USSR, MOSCOW,

UNCLASSIFIED

USSR

UDC   621.376.2

BRAZIS, R. S., VALATSKA, K. K., MACHYULAYTIS, Ch. V., POZHELA, Yu. K.,
Institute of Physics of Semiconductors, Academy of Sciences of the Lithu-
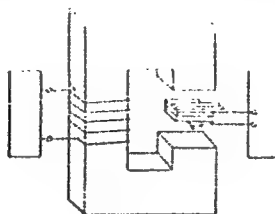anian SSR

"An Amplitude Modulator"

Translation: This Author's Certificate introduces an amplitude modulator
which contains a supply source connected to the winding of an electro-
magnet, and a semiconductor plate which is placed in the fixed magnetic
field of the electromagnet perpendicular to its broad planes. The device
also contains carrier-frequency input and output circuits placed across
the wide faces of the plate, and a source of modulating voltage. As a
distinguishing feature of the patent, speed is increased by making the
semiconductor plate with deep-lying plane junctions (e. g. of the PN type),
and by connecting the ohmic contacts on both sides of the junction directly
to the source of modulating voltage.

1/2

USSR

BRAZIS, R. S. et al., USSR Author's Certificate No 326700

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USSR

UDC 612.82-089:615.837.3

TYURIN, S. I., BRAZOVSKAYA, F. A., ININ, Yu. S., PAYKIN, D. I., SIROTYUK, M. G.,
and GAVRILOV, L. R., Institute of Higher Nervous Activity and Neurophysiology,
Academy of Sciences USSR, Central Design Bureau, Academy of Medical Sciences
USSR, and Acoustic Institute, Academy of Sciences USSR

"Use of Focused Ultrasound for Local Destruction of Brain Structures Through
Intact Skull"

Abstract: Using a focusing emitter to create an ultrasonic field, the authors
irradiated portions of rabbit brains 16 to 20 mm from the surface in the region
of the hypothalamus and mesencephalon without preliminary trephination. A
single sonication produced a lesion 0.2 to 1 mm in diameter and 1 to 3 mm in
length. No pathological changes were noted on the way to the target area in
which histological examination of frontal sections revealed a focus of coagu-
lation necrosis.

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Optics & Spectroscopy

BRAZOVSKIY, V. Ye., LISITSYN, V. N., and TELEGIN, G. G.

"Some Peculiarities of Transition Processes in a He-Ne Laser at $\lambda = 0.63$ μ"

Abstract: Some peculiarities in the transition processes of a He-Ne laser operating with a wavelength of 0.63 microns are discussed. They were observed during weak modulation of the discharge current by square pulses, with a constant current of 8 ma maintaining the discharge in a tube measuring 350 mm long with an inner diameter of 3.5 mm. The experiment described in this paper consisted of observing the form of the generated pulses as a function of the partial pressures in the tube. With the Ne pressure held constant, the He pressure was varied from 0.8 to 2 mm Hg. Oscillograms of three pulse shapes corresponding to He pressures of 1.8 and 2.0 and an Ne pressure of 0.06 mm Hg are obtained. High transition process times were observed in experiments investigating transient process statistics.

1/1

USSR

UDC 532.517.2:536.25

BRDLIK, P. M., DUBOVIK, V. I., MOLCHADSKIY, I. S., Moscow

"Heat and Mass Transfer with Natural Convection on a Vertical Porous Surface During Injection of Carbon Dioxide Into Air"

ABSTRACT: Results are presented from the numerical calculation of a laminar boundary layer with free convection of a binary mixture of carbon dioxide and air at a vertical heated surface. A comparison is presented of the numerical solution with an approximate analytic solution and experimental results.

1/1

1/2   042   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--BLOWING THROUGH PORES AND SUCTION IN THE PRESENCE OF FREE
  CONVECTION AT A HORIZONTAL PERMEABLE SURFACE -U-
AUTHOR-(03)-BRDLIK, P.M., MOCHALOV, V.A., SUGAK, V.G.

COUNTRY OF INFO--USSR

B

SOURCE--INZHENERNO-FIZICHESKII ZHURNAL, VOL. 18, APR. 1970, P. 617-623

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--THERMAL BOUNDARY LAYER, HEAT TRANSFER, HEAT TRANSFER
  COEFFICIENT, MATHEMATIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1263   STEP NO--UR/0170/70/018/000/0617/0623

CIRC ACCESSION NO--AP0124914
                        UNCLASSIFIED

2/2   042   UNCLASSIFIED   PROCESSING DATE—20NOV70

CIRC ACCESSION NO—AP0124914

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. APPLICATION OF A MACH ZEHNDER INTERFEROMETER TO A STUDY OF THE FORMATION OF A THERMAL BOUNDARY LAYER AND THE HEAT TRANSFER AT A HORIZONTAL HEATED SURFACE IN THE PRESENCE OF FREE CONVECTION. THE EXISTENCE OF A CENTRAL AND AN OUTER REGION, EACH OF WHICH HAS ITS OWN HEAT TRANSFER LAW IS DEMONSTRATED, AND FORMULAS FOR CALCULATING THE HEAT TRANSFER IN EACH REGION WITH ALLOWANCE FOR BLOWING OR SUCTION ARE PROPOSED IN WHICH BLOWING AND SUCTION PARAMETERS FOR EACH OF THE REGIONS ARE INTRODUCED. IT IS SHOWN THAT THE EFFECT OF BLOWING OR SUCTION ON THE HEAT TRANSFER COEFFICIENT IS SMALLER FOR HEATING OF UPPER SURFACE THAN OF THE LOWER SURFACE, DUE TO TURBULENCE ASSOCIATED WITH THE FORMATION OF A CELLULAR FLOW STRUCTURE.   FACILITY: NAUCHNO-ISSLEDOVATEL'SKII INSTITUT STROITEL'NOI FIZIKI, MOSCOW, USSR.

UNCLASSIFIED

USSR

BREDIKHIN, B. M. and LINNIK, Yu. V. (Deceased)

"Using Theorems Involving Prime Numbers in Diophantine Problems of a Special Type"

Abstract: The purpose of this article is to demonstrate how the idea developed by I. M. Vinogradov (Izbrannyye trudy -- Selected Works -- Moscow, 1952) for solving difficult problems through the use of prime numbers can be applied to some special types of Diophantine problems with the assistance of the Cauchy-Bunyakovskiy inequality. The authors consider the equation

$$n = \frac{\nu_1 \varphi_1 - \nu_2 \varphi_2}{\nu_1 - \nu_2} \quad (\nu_1 \neq \nu_2):$$

where n is a specified natural number; ν_1, ν_2 are part of the increasing sequence of natural numbers (ν); and φ_1, φ_2 are part of the increasing sequence of natural numbers (φ), with φ_1 and φ_2 less than n. They prove that this equation can be solved and obtain a satisfactory evaluation of the number of solutions of the equation with limits on the density of the

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USSR

ν numbers and on the distribution of the ϕ numbers in arithmetical progressions. Members of the Leningrad Division of the V. A. Steklov Mathematical Institute, they thank S. Utiyam for his comments.

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- 16 -

USSR   UDC 533.916

BREDIKHIN, M. Yu., IL'CHENKO, A. M., MASLOV, A. I., SKIBENKO, A. I.,
SKIBENKO, Ye. I., YUFEROV, V. B.

"Study of a Dense Plasma Formed by an Electron Beam in a Magnetic Trap"

Translation: An experimental study of the possibility of the formation of
a dense plasma in the interaction of a high-energy electron beam with a
neutral gas in a magnetic field of helical configuration is described.
The introduction of a neutral gas into the interaction region in the form
of a supersonic jet made it possible to produce the necessary pressure drop
without applying special differential pumping systems. Conditions for the
exponential rise in plasma density as a function of the parameters of the
beam-plasma discharge were determined. It was concluded on the basis of
the experiments that it is possible to form a plasma with a density of
$5-7 \cdot 10^{14}$ cm^{-3} with a supersonic jet of neutral gas.

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USSR   UDC 533.9.03,621.039.616

BREDIKHIN, M. Yu., IL'CHENKO, A. M., MASLOV, A. I., SKIBENKO, A.
I., SKIBENKO, Ye. I., and YUFEROV, V. B.

"Investigating Conditions for the Formation of a Dense Plasma in
Electron Beam Injection Into a Magnetic Trap"

Abstract: The continuation of an earlier article by the same au-
thors (Ukrainian Physical Journal, 14, 1969, p 1167), this paper
describes experimental work they performed to study the condi-
tions of plasma formation with a density of $10^{14}-10^{15}$ cm^{-3} in a
corkscrew-shaped magnetic trap into which an electron beam inter-
acting with a neutral gas was injected. The experiments were per-
formed with the VGL-2 equipment, in which the magnetic field is
generated by two solenoids cooled with liquid nitrogen. Maximum
magnetic field intensity is 21 kilogauss. A diagram of the VGL-2
together with details of the equipment's operation and the experi-
mental method is given. Oscillograms showing the development of
the beam-plasma discharge are reproduced, and curves of the growth
time of plasma density as a function of electron beam current and
the time rate of change of plasma density in the ionization of a
neutral gas are plotted.
1/1

USSR   UDC 535.343

BREDIKhIN, V. I., GALANIN, M. D., and GENKIN, V. N.

"Two-Photon Absorption and Spectroscopy"

Moscow, Uspekhi Fizicheskikh Nauk, Vol 110, No 1, May 73, pp 3 - 43

Abstract: This survey is devoted to theoretical and experimental studies of
two-photon absorption in various media and its role in the spectroscopy of
molecules, molecular crystals, and semiconductors. Chapter 2 contains a general
analysis of an approximate description (considering two or several levels or
zones of two-quantum transitions). It is shown that when considering two-quantum
absorption it is more convenient to use the energy of interaction with the field E
in the form (dE), where d is the dipole moment. Chapter 3 describes an experi-
mental method used in measuring the values and spectra of two-photon absorption
and an analysis of the characteristics of a two-photon absorption experiment in
various media. Chapter 4 contains a discussion of the nature of two-photon
molecular and molecular crystal spectra. It is shown that two-quantum transitions
are of an electron-oscillatory nature. A detailed comparison is made between the
theory given and experiments available in the literature. The last chapter con-
tains a discussion of two-photon absorption in semiconductors and ionic crystals.

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USSR

BREDIKhIN, V. I., et al., Uspekhi Fizicheskikh Nauk, Vol 110, No 1, May 73, pp 3-43

The theory is compared with experimental results. On the basis of experimental data, it is demonstrated that two-photon absorption in $A_{II}B_{VI}$, $A_{III}B_{V}$, and and $A_{IV}B_{IV}$ semiconductors can be described in basic outlines in a single way in the two-zone model. One table, 14 illustrations, 182 bibliographic sources.

2/2

USSR

ALEKSANDROV, A. P., and BREDIKHIN, V. I., Optika i Spektroskopiya, Vol 30, No 1, Jan 71, pp 72-74

result includes only the following measurements: the duration of the light pulse, its spatial structure and energy. The article includes a block diagram of the experiment. Stable operation of the laser in a single transverse and longitudinal mode   is assured by using a high-quality ruby rod and a special cavity. Q-switching is accomplished by a bleachable filter. The two-photon absorption cross-section was measured for a solution of anthracene in cyclohexane at a concentration of $1.5 \cdot 10^{18}$ cm^{-3}. The measurement process consists of two stages: viz., measuring the fluorescence of the substance during its two-quantum absorption and measuring the fluorescence of anthracene during its single-photon excitation. Three series of measurements for a solution of anthracene in cyclohexane gave the following two-

2/3

USSR   UDC 539.194

ALEKSANDROV, A. P., and BREDIKHIN, V. I.

"Measurement of Absolute Value of Two-Photon Absorption Cross Section for Anthracene Molecules"

Leningrad, Optika i Spektroskopiya, Vol 30, No 1, Jan 71, pp 72-74

Abstract: The article suggests an original technique to overcome the difficulties involved in making absolute measurements of the values of the two-photon absorption cross-section of molecules. A high-power ruby laser is used, generating a single transverse (zero-order) mode under giant pulse conditions. This significantly increases the accuracy of finding the quantum flux density. The second laser harmonic is used as the source for single-photon comparison signal excitation, which assures practical agreement between the geometry of the experiment and the signal time characteristics as well as relative ease of comparing the intensity of the excitation sources and subsequent fluorescence. The end

1/3   - 89 -

USSR

ALEKSANDROV, A. P., and BREDIKHIN, V. I., Optika i Spektroskopiya, Vol 30, No 1, Jan 71, pp 72-74

photon absorption cross section value: $\delta = (1.6 \pm 0.5) \cdot 10^{-51}$ $cm^4 \cdot sec./phot.$

The authors thank V. N. GENKIN for useful discussions.

Organ and Tissue Transplantation

USSR

UDC 616.12-089.843-089.12

BREDIKIS, YU. I., and PUTELIS, R. A., Chair of Hospital Surgery, Kaunas Medical Institute

"Topographical and Anatomical Justification of Surgical Approaches in Heart Transplant Operations"

Abstract: The merits of various surgical approaches in heart transplant operations were studied in 20 cadavers of dogs and 20 cadavers of children and adults using as criteria: depth of the wound angle of operation along the length and width of the incision, and angle of inclination of the axis of operative action. Among seven methods tested, the lateral intercostal approach was found best for animals, the longitudinal transsternal approach for children, and a combined sternal-lateral approach for adults.

1/1

Acc. Nr: *AP0040330*   Ref. Code: *UR 0481*

PRIMARY SOURCE: Eksperimental'naya Khirurgiya i Anesteziologiya, 1970, Nr *1* , PP *12-16*

POLAROGRAPHIC AND ANATOMICAL JUSTIFICATION OF APPROACHES FOR TRANSPLANTATION OF THE HEART

Yu. I. Bredikis, R. A. Putelis

At the present the problem of transplantation of the heart is solved by two ways — homotransplantation or replacement of the heart by a mechanical appliance. The general method for solution of thir phenomena is the choice of the operation approach. The method of Sozon-Yaroshevich was used to assess approaches to the heart on human and dog cadavers. In experiment the best approach is the lateral intercostal one. Transplantation of the human heart can be achieved from longitudinal transsternal approach in children and combined sterno-lateral approach in adults.

1/1

REEL/FRAME
19741761

02 kc

USSR

BAKULIN, Ye. A., BREDOV, M. M., VASIL'YEV, V. A., Physicotechnical Insti-
tute imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"Plasma Oscillations in 3d Metals and Alloys"

Abstract: The authors investigate the spectra of characteristic losses
of energy in transition metals and their alloys with aluminum. Calcu-
lations are based on a phenomenological model of oscillations with regard
to two types of oscillating electrons differing in the energy of local
binding. It is shown that the experimental material may be interpreted
by a hypothesis which assumes incomplete participation of valence elec-
trons in collective oscillations: i. e. that there are two groups of
valence electrons in iron, cobalt, nickel, and their alloys with aluminum.
Characteristic energy loss spectra show a single intense loss line in
aluminum alloys with transition metals which corresponds to excitation
of oscillations of only one group of valence electrons. No loss lines
were observed corresponding to oscillations of all valence electrons.

1/1

USSR

KONSTANTINOV, B. P. (Deceased), BREDOV, M. M., KOLCHIN, A. A., LEBEDEV, V. V. and SKREBTSOV, G. P., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR

"Investigation of Proton Fluxes in the Range 1.5-50 Mev on the 'Zond-4' and 'Zond-5' Automatic Interplanetary Station"

Abstract: A brief description of the equipment used and the data obtained on "Zond-4" and "Zond-5" is presented. "Zond-4" was launched toward the moon on 2 March 1968 and "Zond-5" on 15 September 1968. Two proton detectors were used, one detecting protons in the ranges 1.5-10 Mev and 10-21 Mev and the other to detect protons in the ranges 30-35 Mev and 45-50 Mev. No other particles besides protons were recorded. Measurements beginning at a distance of 3.5 R_E are summarized, concentrating on data from "Zond-5". It was noted that "Zond-5",in accordance with the flight program,sometimes changed orientation and maneuvered in space;

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USSR

KONSTANTINOV, B. P., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 11, pp 2250-2254

the average counting intensity in all channels remained approximately the same, thus making it possible to speak of the "average intensity" of the proton flux. The magnitudes of the average intensities of proton fluxes obtained were: 1.5-10 Mev, $I = 0.5 \cdot 10^3 \ m^{-2} \cdot str^{-1} \cdot sec^{-1}$; 10-20 Mev, $I = 40 \ m^{-2} \cdot str^{-1} \cdot sec^{-1}$; 30-35 Mev, $dI/dE = 35 \ m^{-2} \cdot str^{-1} \cdot sec^{-1} \cdot Mev^{-1}$; and 45-50 Mev, $dI/dE = 50 \ m^{-2} \cdot str^{-1} \cdot sec^{-1} \cdot Mev^{-1}$. A table is given comparing the intensities of proton fluxes in the range 1-10 Mev obtained with U.S. and Soviet space probes from 1964 to 1969.

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BREGADZE, I.F.

biophysics

UNCLASSIFIED

Name: Institute of Biophysics, Pushchino
Description:

(U) During this quarterly reporting period, 25 new articles were identified ... in the Institute of Biophysics, Pushchino. On the basis of these articles, it was possible to identify 32 new personalities with the institute. These personalities, the subjects of the articles, and the dates are given below:

SECTION III: SO: SELECTED PERSONALITIES / FACILITIES

PCS-89

Sept 71

all-biophysics biophysics

Aliyeva, S. A.	phosphorylation	1971(74)
Apikayeva, G. F.	radiation effect	1970(75)
Aripova, D. F.	radiation effect	1971(36)
Achipa, Ya. I.	hypoxia	1969(37)
Bregadze, I. F.	radiation effect	1970(38)
Busel, Ye. P.	luminescence	1970(39)
Dmitriyeva, T. I.	radiation effect	1970(35)
Dmitriyeva, V. A.	blood plasma	1969(30)
Domarova, O. P.	radiation effect	1970(39)
Dubrov, A. P.	biochemical analysis	1971(41)
Gabalova, N. A.	muscle physiology	1971(42)
Ganassi, Ye. E.	radiation effect	1970(39)
Ivkova, M. N.	serum albumin	1971(43)
Kasatkin, V. S.	phosphorylation	1972(3)
Khokhlova, G. K.	muscle physiology	1971(44)
Kislov, A. N.	salivary gland	1973(45)
Klyagina, V. P.	oligonucleotide	1970(46)
Korol, B. A.	radiation effect	1971(44)
Koshcleva, G. N.	biochemical analysis	1971(41)

UNCLASSIFIED

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UNCLASSIFIED

Kuzmina, S. V.	tissue culture	1970 (41)
Markovich, D. S.	lactate dehydrogenase	1971 (48)
Medvedeva, I. F.	radiation effect	1971 (44)
Feshkova, L. V.	phosphorylation	1971 (44)
Pronevich, L. A.	antibiotic	1970 (50)
Rodionova, N. A.	mitochondrion	1971 (51)
Shchipakin, V. N.	phosphorylation	1971 (49)
Skobayev, Ye. M.	radiation/vibration	1970 (52)
Buyanova, V. V.	radiation effect	1970 (35)
Tsvetkov, V. D.	blood plasma	1969 (40)
Jarikhina, N. V.	lactate dehydrogenase	1971 (48)
Vilenchik, M. M.	radiation effect	1970 (53)
Zamyatnin, A. A.	muscle physiology	1971 (42)

Dubrov and Koshaleva (41) are associated with the Laboratory of Cell Biophysics at the Institute. Reference 52 above is of special interest since it presents an investigation of combined stresses, i.e., radiation and vibration. In addition to the above articles, five of the twenty-five (54-58) were authored by persons already identified with the Institute of Biophysics, Pushchino. Reference 55 associates the authors of the article, L. V. Slozhenikina, V. L. Higushina, and A. N. Kuzin, with the Department of Radiobiology at the Institute.

1/2   024   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--SOME DATA CONCERNING THE INFLUENCE OF X RAYS ON THE CEREBRAL
   HYALURONIC ACID OF ANIMALS -U-
AUTHOR--BREGADZE, M.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK GRUZINSKOI SSR, SOOBSHCHENIIA, VOL. 57, JAN. 1970,
   P. 221-224
DATE PUBLISHED----JAN70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--X RAY RADIATION BIOLOGIC EFFECT, ORGANIC ACID, BRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0209   STEP NO--UR/0251/70/057/000/0221/0224

CIRC ACCESSION NO--AP0119205
                        UNCLASSIFIED

2/2   024   UNCLASSIFIED   PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0119205
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF EXPERIMENTS IN WHICH
  MICE AND GUINEA PIGS WERE EXPOSED TO IONIZING RADIATION IN LETHAL AND
  SUBLETHAL DOSES. IT IS FOUND THAT HYALURONIC ACID IS CONTAINED
  PRIMARILY IN THE CAPILLARY WALLS AND VENTRICLES OF THE BRAIN, AS WELL AS
  IN THE CEREBELLUM, THE CEREBRAL CORTEX, AND THE MEDULLA OBLONGATA, AND
  THAT BOTH LARGE AND SMALL RADIATION DOSES PRODUCE CHANGES IN THE
  HYALURONIC ACID IN ALL PORTIONS OF THE BRAIN. THESE CHANGES, HOWEVER,
  ARE PARTICULARLY DISTINCT IN THE CAPILLARY WALLS AND VENTRICLES OF THE
  BRAIN. INSURVIVING ANIMALS, HYALURONIC ACID IS RESTORED FIRST IN THE
  CORTEX OF THE CEREBRAL HEMISPHERES AND IN THE MEDULLA OBLONGA, AND THEN
  IN THE VENTRICLES OF THE BRAIN AND IN THE CEREBELLUM.   FACILITY:
  AKADEMIIA NAUK GRUZINSKOI SSR, INSTITUT FIZIOLOGII. TIFLIS. GEORGIAN
  SSR.

UNCLASSIFIED

USSR

UDC 591.1

BREGADZE, M. A., Institute of Physiology, Academy of Sciences Georgian SSR

"Some Data on the Action of X-rays on Hyaluronic Acid in Animal Brains"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 57, No 1, 1970, pp 221-224

Abstract: Disturbances in the functional state of the CNS are connected with changes in metabolic processes, which depend to a large extent on tissue permeability. Alterations in the system hyaluronic acid-hyaluronidase in turn control this permeability. Hyaluronic acid in the brain of irradiated and control animals (mice and guinea pigs) was studied. It was determined that in control animals, hyaluronic acid is found principally in capillary walls, in the ventricle and cerebellum, in the cerebral hemispheres, and in the medulla. Both high and low x-ray doses induced some changes in hyaluronic acid throughout all brain regions. Recovery of hyaluronic acid in surviving animals occurs first in the hemispheres, then in the medulla, ventricle and in the cerebellum. This recovery occurred after 20-25 days.
1/1

UNCLASSIFIED   PROCESSING DATE---30OCT70
TITLE--INTRAMOLECULAR COORDINATION IN ORGANOMETAL,METALLOID, COMPOUNDS -U-

AUTHOR-(03)-PROKOFYEV, A.K., BREGADZE, V.I., OKHLOBYSTIN, O.YU.

CCUNTRY OF INFO--USSR

SOURCE--USP. KHIM. 1970. 39(3), 412-43

B

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COORDINATION CHEMISTRY, ORGANOMETALLIC COMPOUND

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2047   STEP NO--UR/0074/70/039/003/0412/0443

CIRC ACCESSION NO--AP0125635
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125635

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 210 REFERENCES
  THROUGH PART OF 1969, COVERING THE NATURE OF INTRAMOL. COORDINATION, ITS
  RELATION TO PHYS. PROPERTIES OF MOLS. AND ITS CHEM. CONSEQUENCES. SUCH
  COORDINATION IS DISCUSSED AS THE DRIVING FORCE IN ELIMINATIONS.
  FACILITY: INST. ELEMENTCORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

BREGER, A.KH., GOL'DIN, V. A., DOBROVOL'SKIY, S. P., and KOZLOV, YU. D.

"Radiation-Chemical Construction of Instruments -- the Principles for the Establishment of Material-Technical Basis of Applied Radiation Chemistry"

Abstract: A review with 127 references devoted to the problem of principal goals and current status in the area of radiation-chemical construction of instruments -- one of the more important components of radiation-chemical technology. The review covers experimental and design results of the construction of radiation-chemical instruments using: 1) γ-irradiation of long life radioactive isotopes (Co^{60}) as well as of the short lived ones in the nuclear power reactors (complex energy-chemical use of nuclear fule); 2) electron streams generated by the accellerators. Areas have been pointed out in which the potential of the utilization of various radiation sources was the highest, considering both the radiation-technological parameters of these processes and their economic indicators. The state of the art satisfies the requirements originating in the realization of these results in agriculture.
1/1

1/2   026   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--TWO MODES FOR DECREASING THE IRREGULARITY OF DOSE FIELDS ALONG A
   RADIATION LOOP SOURCE -U-
AUTHOR-(02)-STARIZNYY, E.S., BREGER, A.KH.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(3), 255-6

DATE PUBLISHED------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RADIOCHEMISTRY, RADIATION SOURCE, RADIATION INTENSITY,
   PARTICLE DISTRIBUTION, FLUID FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0028   STEP NO--UR/0089/70/028/003/0255/0256

CIRC ACCESSION NO--AP0120728
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0120728   UNCLASSIFIED   PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE DOSE FIELDS IN RADIATION CHEM. EQUIPMENT MAY BE MADE MORE UNIFORM BY 2 METHODS: (A) BY THE USE OF COUNTERCURRENT FLOW OF THE RADIATION SOURCE; (B) BY A GRADUAL DECREASE IN THE FLOW RATE OF THE RADIATION SOURCE ALONG THE IRRADN. CHANNELS. A COMBINATION OF THE 2 METHODS MAY ALSO BE USED.

UNCLASSIFIED

USSR

UDC 51:621.391

BREGMAN, L. M.

"On an Approach to Problems of Whole Number Programming"

V sb. Issled. operatsiy i stat. modelir. (Operations Research and Statistical Modeling--collection of works), First Edition, Leningrad University, 1972, pp 42 - 47 (from RZh Matematika, No 11, Nov 73, abstract No 11 V665)

Translation: The problem considered is that of minimizing a linear function cx on a finite set $X \subset E^n$. The author proceeds to an equivalent problem of minimizing cx on a convex shell X: to find vectors $x[1:n]$ and $u[1:r]$ from the conditions:

$$\sum_{j=1}^{n} c[j]x[j] \to \min, \tag{1}$$

$$\sum_{s=1}^{r} u[s] = 1, \tag{2}$$

$$\sum_{s=1}^{r} u[s]\tilde{x}[s,j] - x[j] = 0, \tag{3}$$

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USSR

BREGMAN, L. M., Issled. operatsiy i stat. modelir, First Edition, Leningrad University, 1972, pp 42 - 47

$$u(s) \geq 0, \quad x[j] \geq 0. \tag{4}$$

There is further consideration of the convex programming problem

$$\sum_{j=1}^{n} c[j]x[j] + \epsilon \sum_{j=1}^{n} x[j] \ln(x[j]-1) +$$

$$+ \epsilon \sum_{s=1}^{r} u[s](\ln(u[s])-1) \rightarrow \min \tag{5}$$

$$\Sigma \, u[s] = 1, \tag{6}$$

$$\Sigma \, u[s] \bar{x}[s,j] - x[j] = 0, \tag{7}$$

$$u[s] \geq 0, [x]j \geq 0. \tag{8}$$

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USSR

BREGMAN, L. M., Issled. operatsiy i stat. modelir, First Edition, Leningrad University, 1972, pp 42 - 47

It is assumed that 1) the vectors $\tilde{x}[1,\ldots]$, ..., $\tilde{x}[r,\ldots]$ consist of zeroes and ones; 2) for each $j \in \{1,\ldots,n\}$, an $x[s,j] \in X$ is found, such that $x[s,j]$ is greater than 0.

Supposing: 1) z is the value of the minimum of function (1) in the problem (1)-(4) 2) $\bar{z}$ is the value of the function cx, if x is the solution to the problem (5) - (8); 3) k is the maximum of the function

$$-(\Sigma u[s]\ln(u[s] + \Sigma x[j]\ln(x[j]))$$

for the conditions (6) - (8).

Theorem 1. $\bar{z} - z \le \epsilon k$.

It follows from theorem 1 that the solution to problem (5) - (8) can be considered, for small values of ϵ, to be an approximate solution of the problem (1) - (4).

Theorem 2. There exists $\alpha, \beta[1], \ldots, \beta[n]$, such that for the optimal solution of the problem (5) - (8), the following is true:

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USSR

BREGMAN, L. M. Issled. operatsiy i stat. modelir, First Edition, Leningrad
University, 1972, pp 42 - 47

$$u[s] \quad \alpha = \prod \beta[j],$$
$$j \in J[s],$$

(9)

where $J[s]$ is the set of those values of j for which $x[s,j] = 1$.

An iterative method of solving problem (5) - (8) is described, in which there
is a representation (9) for each approximation $u[k]$. In using this method, it is
recommended that a Monte Carlo technique be applied. The method of this work can be
generalized to the case of an arbitrary set X.

Abstract by Yu. Finkel'shteyn

4/4

I. Decision-making, Game Theory and
Optimal Programming

USSR

BREGMAN. L. M.. FOKIN. I. N.

"The Sums of Matrix Games"

Ekonomika i Mat. Metody [Economics and Mathematical Methods], 1973, Vol 9,
No 1, pp 148-154 (Translated from Referativnyy Zhurnal Kibernetika, No 6,
1973, Abstract No 6V482, by the authors).

Translation: The structure of optimal strategies in sums of matric games is
studied (see also RZhMat, 1970, 4V426). A necessary and sufficient condition
is presented, assuring that in game Γ, the sum of matrix games Γ_1, Γ_2,..., Γ_n
with fixed set I of pure strategies of player I, with any m_ν x n_ν matrices A_ν
in games $\Gamma_\nu (\nu = 1,..., n)$ and with any set of pure strategies of player II,
there is an optimal strategy $x = \{x_i | i \in I\}$ of player I, number α and mixed
strategies $x^\nu = (x_1^\nu,..., x_{m_\nu}^\nu)$ of the first player in games Γ_ν such that the
representation

$$x_i = \alpha \prod_{\nu=1}^{n} x_{i_\nu}^\nu$$

1/2

USSR

Bregman, L. M., Fokin, I. N., Ekonomika i Mat. Metody, 1973, Vol 9, No 1, pp 148-154.

obtains for all pure strategies $i = (i_1, \ldots, i_n)$ of player I. Examples of sums of matrix games are studied, in which this condition is easily tested.

2/2

USSR

BREGMAN, L. M., FOKIN, I. N.

"The Sums of Matrix Games"

Mat. Apparat. Planov. Raschestov. [Mathematical Apparatus of Plan Calculations -- Collection of Works], Moscow, 1972, pp 73-85 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V671 by the authors).

Translation: A definition is presented for the sum of matrix games and the structure of optimal strategies in such games is studied. A necessary and sufficient condition is presented for a set of pure strategies of a player in the sum of a matrix game to be complete. In this case the game-sum of the player includes an optimal strategy allowing representation of a special form. Examples of the sums of matrix games are studied in which the sets of pure strategies of the players are complete.

1/1

USSR

BREKHMAN, I., Doctor of Medical Sciences, Professor, Chairman of the Committee
to Study Medicines of the Far East Under the Presidium of the Far Eastern
Scientific Center of the USSR Academy of Sciences

"Medical Arsenal of the Country"

Moscow, Komsomolskaya Pravda, 27 Jan 73, p 4

Abstract: The use of ginseng and eleutherococcus in medical practice and
especially to build up general resistance to diseases and harmful effects is
discussed. The mechanism of the broad-spectrum preventive and treatment
effects of the ginseng family of plants is discussed. For the functions of all
cells of an organism, the processes of biosynthesis of nucleic acids (DNA and
RNA) and specific proteins have the most important significance. It is these
processes and the supply of energy for them which are the target of the appli-
cation of ginseng and eleutherococcus. These substances and other adaptogens
do not introduce new or foreign matter into the body, but they maintain and
restore the general nonspecific resistance of the organism itself. The need
to overcome the taboo of "medicine for healthy people" is emphasized, and the
founding of an institute to study Far Eastern medicines in the Far East is
urged.
1/1

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USSR

UDC 612.744.2+615.739

BREKHMAN, I. I., and DARDYMOV, I. V.

"The Mechanism Increasing the Resistance of the Organism Under the Influence of Ginseng and Eleutherococcus Preparations", pp 83-89, Sintez Belka i Rezistentnost' Kletok, (Proteins Synthesis and Cell Resistance), Leningrad, "Nauka," 1971, 104 pp

Abstract: Experimental data is cited regarding the stimulant effect of ginseng, Eleutherococcus, dibazole, and phenamine (amphetamine) preparations on the functional capacity of mice. Results of studies of carbohydrate metabolism during physical loading after administration of glycosides of ginseng and Eleutherococcus are presented. The role of the adrenals in the stimulating effect of eleutherosides is examined. The capacity of ribonuclease and actinomycin D to inhibit the stimulant effect of Eleutherococcus and dibazole preparations, and also the capacity of actinomycin to prevent the regulating effect on carbohydrate metabolism of glycosides of Eleutherococcus and ginseng in swimming rats were shown.

1/1

- 125 -

USSR

UDC 615.771.8:593/594

BREKHMAN, I. I., GONENKO, V. A. and KOSTETSKIY, E. Ya., Institute of Biologi-
cally Active Substances, Far East Affiliate, Siberian Department, Academy of
Sciences USSR, Vladivostok

"The Antiradiomimetic Effect of Some Compounds Extracted From Marine
Invertebrates"

Abstract: The presence of natural antiradiomimetic compounds in marine
invertebrates was investigated by preparing chloroform-methanol, methanol, and
physiological saline extracts from 97 species of marine invertebrates repres-
enting 11 types and 17 classes, adding these extracts to suspensions of rat
erythrocytes, and measuring their ability to prevent hemolysis by oxygenated
oleic acid (added 10 minutes later). The highest antiradiomimetic activity
was displayed by chloroform-methanol extracts. These extracts contained large
amounts of glycolipids and phospholipids, including sphingomyelin and lysole-
cithin, and almost no ninhydrin-positive unsaponifiable phospholipids. Cer-
tain fractions obtained from the extracts displayed greater antiradiomimetic
activity than the initial total extract. The overall findings indicate that
1/2

USSR

many of the phylogenetically younger marine invertebrates have a high anti-radiomimetic activity, which in some cases is greater than that of known synthetic antioxidants.

2/2

Pharmacology and Toxicology

USSR

UDC 615.89 (083.1) 681.32

GRINEVICH, M. A. and BREKHMAN, I. I., Institute of Biologically Active
Substances, Far-Eastern Scientific Center, Academy of Sciences USSR,
Vladivostok

"Investigation of Complex Prescriptions of Eastern Medicine and Their
Components With the Help of Electronic Computer. Report 4. Analysis of
Prescriptions Intended for the Treatment of Certain Diseases"

Abstract: Ten groups of prescriptions containing medicinal plants most
frequently used by the traditional medicine of the East for the treatment
of anemia, nephritis, rheumatism, diabetes, sterility, hepatic disorders,
nervous diseases, malignancies, hypertension, and tuberculosis were studied.
It was established that the number of prescriptions in any one group fluc-
tuated between 5 and 14, with the total number of plants varying from 20
to 66, and averaging 6-9 plants in a single prescription. With the use
of the Minsk-22 computer, it was possible to determine the number of plants
most frequently encountered in the prescriptions used in the treatment of
a given disease. It was found that the plants most frequently encountered
in various groups of prescriptions are Glycyrrhiza uralensis, Rehmannia
1/2

USSR

GRINEVICH, M. A. and BREKHMAN, I. I., Rastitel'nyye Resursy, Vol 7, No 4, 1971, pp 500-502

chinensis, Poria cocos, Panax ginseng, and others. Tonic properties are ascribed to almost all of them, indicating the important role which tonic drugs play in the traditional medicine of the Southeastern countries. Further research is urged.

2/2

USSR

BREKHMAN, I. I., Professor, Vladivostok

"Ginseng -- 'the Root of Life'"

Moscow, Zdorov'ye, No 4, Apr 71, pp 20-21

Abstract: The medical uses of ginseng have been known in Southeast Asia for about 5,000 years, and according to the legends, it was a panacea for all ailments. People who had reached 40 years of age were supposed to take ginseng, even if they had no disease, during the fall and winter months. Using the Minsk-22 computer, 158 complex prescriptions in Southeast Asian medical practice were analyzed. It was found that ginseng was the third most popular ingredient, and that two-thirds of the prescriptions were tonics. Ginseng's restorative qualities are the result of glycosides and saponins. It is given to people suffering from neuroses, neurasthenia, psychasthenia, hypertension, diabetes mellitus (especially among the elderly), the results of infectious hepatitis, and for impotence of neurasthenic origin in males. An experiment in Brekhman's laboratory with female mice that were given ginseng extract in drinking water starting at 16 months of age showed that the life-space of experimental mice was 768 days, while the life-span of mice in the control group was 659 days. Clinical observation in institutions in Moscow, Leningrad, Kiev, and Vladivostok and other cities showed that positive effects of gin-
1/2

USSR

BREKHMAN, I. I., Zdorov'ye, No 4, Apr 71, pp 20-21

seng on the elderly. The author believes that ginseng should be cultivated
since the wild plant is disappearing. Chemical substances close to ginseng
glycosides have been synthesized in the laboratory.

2/2

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USSR

UDC 615.89+681.2

GRINEVICH, M. A., and BREKHMAN, I. I., Institute of Biologically Active
Substances, Far Eastern Affiliate of the Academy of Sciences USSR, Vladivostok

"Investigation of Complex Formulations of Oriental Medicines and Their Com-
ponents, Communication 3. Tonic Substances in the Medical Therapy of
Oriental Medicine"

Abstract: The authors distinguish between "stimulating" and "tonic" agents
in medical formulations. Medical substances containing plant- or animal-
derived tonic components occur frequently in oriental formulations for medical
substances, which distinguishes the latter from American or European pre-
scriptions. The compositions of a large number of oriental medicines (some
of which have been in use for thousands of years) were studied and the data
evaluated by computer. Some 45 plants were identified by their tonic effect.
The authors see future tasks in qualitatively perfecting the tonic materials
already known, rather than in attempting to find new sources for such materials.

1/1

USSR

UDC 615.89+681.142

GRINEVICH, M. A. and BREKHMAN, I. I., Institute of Biologically Active Substances, Far-Eastern Branch, Siberian Department, Academy of Sciences USSR, Vladivostok

"Study of the Complex Prescriptions of Eastern Medicine and Their Components Using a Computer. Report 2. Thirty Medicinal Plants Used Most Frequently in the Traditional Medicine of the Countries of South-East Asia"

Abstract: A total of 158 complex prescriptions of Eastern medicine, made up of 233 medicinal plants were analyzed. The following characteristics were determined: frequency of appearance in prescriptions, the frequency of prescriptions with two types of action, i.e. stimulating and hypoglycemic, and the frequency of use of plants in different illnesses. The sum of these indices is a cumulative index; varying from 3 to 416, but for the majority of plants (more than 200) not exceeding 30. Thirty plants have a cumulative index above 30. The first ten plants have a cumulative index above 100; the second ten - an index of 51-100, and the third ten - an index no less than 30. Panax ginseng is in third place (cumulative index of 252), and Glycyrrhiza uralensis Fisch is first (416), G. uralensis has been used for about 5000 years in China, Korea, Vietnam, Burma, India, Tibet, etc. for ... of lung and stomach diseases. A total of 13 plants on the first are ...
1,'

USSR

GRINEVICH, M. A. and BREKHMAN, I. I., Rastitelnyye Resursy, Vol 6, No 2, 1970, pp 153-157

12 have a tonic effect, and only one plant, Aconitum fischeri, is poisonous. All these plants deserve detailed pharmacological, chemical and other studies.

USSR

UDC   591.105

BREKHMAN, I. I., BERDYSHEV, G. D., and GOLOTIN, V. G., Institute
of Biologically Active Substances, Academy of Sciences USSR,
Vladivostok

"The Effect of Eleutherococcus and Ginseng on the Activity and
Adaptive Synthesis of Tryptophan Pyrrolase in Rats"

Abstract: Liquid extracts of eleutherococcus and ginseng had no
effect on tryptophan pyrollase (TPase) activity in normal or
adrenalectomized rats. Following the simultaneous injection of
normal rats with hydrocortisone and eleutherococcus, the latter
intensified hormonal induction of TPase, whereas hydrocortisone
plus ginseng did not alter the activity of the enzyme. After
stress (caused by suspension by the neck folds for 24 hours)
eleutherococcus intensified the activity and hormonal induction
of TPase in both normal and adrenalectomized rats. Ginseng, on
1/2

USSR

BREKHMAN, I. I., et al., Izvestiya Akademii Nauk SSSR,
Seriya Biologicheskaya, No 1, 1971, pp 31-37

the other hand, had no effect on the activity or hormonal induc-
tion of the enzyme in normal animals, but sharply lowered the
level of hormonal induction in adrenalectomized animals without
affecting the activity of the enzyme. Since stress alone or
against a background of eleutherococcus significantly increases
the activity and adaptive synthesis of TPase, it would appear
that the enzyme is regulated through a nonadrenal mechanism.

1/2   025

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--EFFECT OF SOME BIOLOGICALLY ACTIVE AGENTS ON THE INDEX OF INDIVIDUAL RADIOSENSITIVITY -U-

AUTHOR-(03)-BREKHMAN, I.I., KLIMASHEVSKAYA, A.V.; GONENKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(1), 153

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIATION SENSITIVITY, OXYGEN METABOLISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0466

STEP NO--UR/0205/70/010/001/0153/0153

CIRC ACCESSION NO--AP0121140

UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0121140

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF BIOL. ACTIVE AGENTS ON THE "INDEX OF INDIVIDUAL RADIOSENSITIVITY" (IIR) WAS STUDIED BY DETG. THE RATIO OF THE O REQUIREMENT AT ROOM TEMP. (20DEGREES) TO 0DEGREES. UNDER THE INFLUENCE OF BIOL. ACTIVE AGENTS, IIR INCREASED OR DECREASED, DEPENDING ON THE STARTING LEVELS. WITH OPTIMAL DOSES OF THE BIOL. ACTIVE AGENTS, CHARACTERIZED BY RADIORESISTANCE, THE O REQUIREMENT INCREASED AFTER CHILLING, INCREASING THE IIR. AN INCREASE OF IIR CHARACTERIZED THE ABILITY TO INCREASE THE NONSPECIFIC ORGANISM RESISTANCE. THE IIR VALUE CAN BE USED AS AN INDICATOR IN THE PRELIMINARY SELECTION OF THE BIOL. ACTIVE AGENT, BY INCREASING THE NONSPECIFIC RESISTANCE, INCLUDING RESISTANCE AGAINST RADIOACTIVITY. FACILITY: INST. BIOL. AKTIV. VESHCHESTV, VLADIVOSTOK, USSR.

UNCLASSIFIED

USSR

BREKHOV, A. M., DAKELIN, A. I., MELAMUD, T. I.

"Automatic Distribution of the External Memory of the Computer Complex of an Automated Control System"

Translation: The authors consider a machine algorithm for automatic distribution of the external memory when recording data blocks. In accordance with this algorithm, ordinal numbers are assigned to all data blocks during automatic processing. According to these ordinal numbers, catalog I is compiled which contains the following quantitative characteristic of each block: $\{r; l; m; k; A; a\}$, where r is the ordinal number of the block; l is a data recording tag; m is the number of quanta in the block; k is the length of a quantum; A and a are respectively the number of the magnetic tape and the address on that tape where the block begins;

1/2

USSR

BREKHOV, A. M. et al., Tr. Leningr. inzh.-ekon. in-ta (Works
of Leningrad Engineering Economics Institute), 1972, vyp. 94,
pp 26-29

$$Z = \begin{cases} 0 \text{ if the block is recorded on one section of the external memory;} \\ 1 \text{ if the block is recorded on two sections of the external memory.} \end{cases}$$

When $Z=1$ the quantitative characteristic of the second part
of the block is contained in catalog II, whose structure is
analogous to that of catalog I. The assignment of magnetic
tape volumes set aside for solution of a specific problem
is contained in catalog III. The cell address in catalog III
is the number of the tape-transport mechanism, the length of
the tape in this unit characterizing the content of this cell.

2/2

USSR

UDC 51:330.115

NIKITIN, Ye. N., BREKHOV, A. M., LIVSHITS, S. Ye.

"Parametric "Time-Cost" Problem"

Tr. Leningr. Inzh.-ekon. In-ta [Works of Leningrad Engineering Economics Institute], No 79, 1971, pp 74-83, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V729).

NO ABSTRACT.

1/1

- 35 -

USSR

UDC 512.25/.26+519.3:330.115

NIKITIN, Ye. N., BREKHOV, A. M., LIVSHITS, S. Ye.

"Network Method of Solution of Problems in Integer Linear Programming"

Translation: The general problem of integer linear programming is studied. The ideas of the method of sequential analysis of versions are used for its solution by directed sampling (RZhMat, 1966, 1V96, 5V68, 11V279). The volume of computational work, generally quite high, is estimated.

1/2   033

UNCLASSIFIED

TITLE--ANALYSIS OF THE EFFECT OF A GASEOUS MEDIUM ON THE STABILITY OF A VIBRATING STRING TRANSDUCER -U-

PROCESSING DATE--02OCT70

AUTHOR--BREKHOV, R.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. VUZ. PRIBOROSTROENIE, VOL. 13, NO. 1, 1970, P. 108-111

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--PIEZOELECTRIC TRANSDUCER, VIBRATION EFFECT, ELECTROSTATIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0370

STEP NO--UR/0146/70/013/001/0108/0111

CIRC ACCESSION NO--AP0102382

UNCLASSIFIED

CIRC ACCESSION NO--AP0102382   UNCLASSIFIED   PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECT OF A GAS ON THE VIBRATIONAL PROPERTIES OF AN ELECTROSTATICALLY EXCITED STRING. A FORMULA IS OBTAINED WHICH MAKES IT POSSIBLE TO DETERMINE THE EFFECT OF A GAS ON THE NATURAL FREQUENCY OF A RIBBON TYPE STRING VIBRATING IN A GAP BETWEEN TWO FLAT ELECTRODES AT MEDIUM PRESSURES.

UNCLASSIFIED

USSR

UDC: 621.316.38:629.735.33

BREKHOV, V. M. and LARIONOV, V. P., Moscow Power Institute

"Protection of Aircraft Fairings Against Lightning"

Moscow, Elektrichestvo, No 11, 1972, pp 89-90

Abstract: To protect the nose fairing of the aircraft, the most vulnerable portion of the plane to lightning damage, the surface of the fairing has mounted on it a system of lightning rods, in the form of ribbons of metal joined to the metal of the fuselage. Detailed instructions on how this is done are given. Also given are the results of tests made in the laboratory of the High-Voltage Engineering section of the Moscow Power Engineering Institute, in which the probability of lightning striking certain portions of the fairing was measured through photography. Curves are plotted for the probability of damage to the fairing surfaces as functions of lightning-rod parameters. Results of the tests showed also that best protection is afforded by duralumin ribbons with a cross section of 20-25 mm². The authors thank B. A. Smol'tsov for his assistance with the work.

1/1

1/3   027   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--SOME PROBLEMS OF SOUND RADIATION BY WAVES PROPAGATING ALONG
  CURVILINEAR BOUNDARIES -U-
AUTHOR-(03)-BREKHOVSKIKH, L.M., GONCHAROV, V.V., GOSTEV, V.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, AKRUSTICHESKIY ZHURNAL, VOL 16, NO 1, 1970, PP 25-31

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ACOUSTIC PROPAGATION, NONLINEAR EFFECT, SURFACE WAVE, ACOUSTIC
  DAMPING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1874   STEP NO--UR/0046/70/016/001/0025/0031

CIRC ACCESSION NO--AP0106542
                    UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NONLINEAR INTERACTION OF SURFACE
WAVES EXISTING ALONG THE CURVILINEAR BOUNDARY OF A LIQUID IS CONSIDERED.
IT IS SHOWN THAT UNDER CERTAIN CONDITIONS A SOUND WAVE IS PROPAGATED
WHOSE AMPLITUDE AT LARGE DISTANCES FROM THE BOUNDARY GREATLY EXCEEDS THE
AMPLITUDE OF LINEARLY EXCITED WAVES. DETAILED CALCULATION WAS MADE FOR
CYLINDRICAL AND SPHERICAL SURFACES. IT IS POSSIBLE THAT THIS EFFECT
ACCOUNTS FOR THE BREAKDOWN OF THE JETS AND DROPS OF LIQUID OBSERVED IN
SEVERAL EXPERIMENTS. A METHOD IS PROPOSED WHICH MAKES IT POSSIBLE TO
EXTEND RESULTS TO THE CASE OF AN ARBITRARY CONVEX SURFACE WITH A
SMOOTHLY CHANGING CURVATURE. THE THEORY SET FORTH CAN PROVE USEFUL IN
CALCULATING THE NOISE PRODUCED BY A VIBRATING SURFACE.   LET US ASSUME A
CONVEX CLOSED SURFACE S SUBO:R EQUALS R SUBO (U, V), R IS IDENTICAL TO
(X, Y, Z).   IT DIVIDES THE SPACE INTO TWO REGIONS: EXTERNAL AND
INTERNAL. ONE OF THE REGIONS IS FILLED WITH A MEDIUM WITH A CONSTANT
SPEED OF SOUND AND WITH THE DENSITY OF THE UPERTURBED STATE P. AS S
SUBO, BOUNDARIES OF TWO TYPES ARE CONSIDERED: LIQUID VACUUM INTERFACE
AND A THIN ELASTIC MEMBRANE BOUNDING A LIQUID OR GAS. THEN LET THERE BE
PROPAGATED FURTHER ALONG THE SURFACE S SUBO WAVES WHOSE LENGTH IS LESS
THAN THE WAVELENGTH OF SOUND IN THE MEDIUM, SUCH THAT THEIR AMPLITUDE
QUITE RAPIDLY DIES AWAY AT INCREASING DISTANCE FROM S SUBO. THESE WAVES
WILL BE REFERRED TO AS SURFACE WAVES IN CONTRAST WITH WAVES HAVING A
CONSTANT OF SLOWLY ATTENUATING AMPLITUDE, REFERRED TO AS SOUND WAVES.
THE PROBLEM IS THEN TO FIND THE PARAMETERS OF THE SOUND WAVE PROPAGATED
BY THE INTERACTING SURFACE WAVES.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--21OCT70

CIRC ACCESSION NO--AP0106542

ABSTRACT/EXTRACT--FACILITY: ACOUSTICS INSTITUTE OF THE USSR ACADEMY OF SCIENCES.

UNCLASSIFIED

$\mathcal{B}$

104122u Calculation of the acceleration factor for absorption accompanied by a chemical reaction illustrated by the absorption of sulfur dioxide by sodium hydroxide solutions. Dytnerskii, Yu. I.; Brekhovskikh, N. S. (Mosk. Khim.-Tekhnol. Inst. im. Mendeleeva, Moscow, USSR). *Zh. Prikl. Khim.* (*Leningrad*) 1970, 43(1), 174-6 (Russ). Rate of SO_2 absorption by 0.1-3.0N NaOH soln. was detd. by using the acceleration factor (1965) and known rate const. (120 m^3/kmole sec). HMJR

K

REEL/FRAME
19791203

18 nd

USSR

UDC 539.213

BREKHOVSKIKH, S. M., VIKTOROVA, Yu. N., GRINSHTEYN, Yu. L., and
LANDA, L. M.

"Bases of Radiation Behavior of Glass and Ceramics"

Stroyizdat (Construction Publications) 1971, 256 pages, illustrated, price
1 ruble 52 kopeks (from RZh--Fizika, No 9, 1971, Abstract No 9E231K)

Translation: This is a monograph on the effect of radiation on glass and
ceramics, designed for engineers and technicians. Principal attention is
given to the dependence of the degree of radiation destruction on the
structure, chemical, and phase state of the material. T. Kh.

1/1

1/2   011   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--USE OF PMR FOR EVALUATING THE CHEMISTRY OF THE DEHYDRATION OF
  MONOSUBSTITUTED MAGNESIUM, CALCIUM, AND BARIUM ORTHOPHOSPHATES -U-
AUTHOR-(04)-BREKHUNETS, A.G., MANK, V.V., PECHKOVSKIY, V.V., SHCHEGROV,
  L.N.
COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(3), 509-12

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHATE, MAGNESIUM COMPOUND, CALCIUM COMPOUND, BARIUM
  COMPOUND, DEHYDRATION, MAGNETIC RESONANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0329   STEP NO--UR/0368/70/012/003/0509/0512

CIRC ACCESSION NO--AP0119316
                       UNCLASSIFIED

CIRC ACCESSION NO--AP0119316

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF THERMAL DEHYDRATION UPON THE WIDE LINE PMR SPECTRA OF MG (H SUB2 PO SUB4) SUB2.2H SUB2 O, CA(H SUB2 PO SUB4) SUB2.H SUB2 O, AND BA (H SUB2 PO SUB4) SUB2. 0.1H SUB2 O WERE STUDIED AT 25 AND MINUS 120DEGREES. THREE OVERLAPPONG BANDS WERE OBSD. IN THE SPECTRA: THE 1ST BAND, ATTRIBUTED TO CRYSTN. WATER, IS ABSENT IN BA PHOSPHATE AND DISAPPEARS FROM THE OTHERS AFTER DEHYDRATION AT 250DEGREES, THE 2ND BAND, WHICH BELONGS TO OH GROUPS OF H SUB2 PO SUB4 PRIME NEGATIVE IONS AND TO WATER OF LIMITED MOBILITY, INDICATES THE BEGINNING OF H SUB2 PO SUB4 PRIME NEGATIVE DECOMPN. AT 250DEGREES, THE BAND DISAPPEARS AT 450DEGREES IN THE CASE OF MG PHOSPHATE, THE 3RD BAND OF MOBILE WATER REMAINS IN THE SPECTRUM EVEN AFTER THE SAMPLE HAS BEEN DEHYDRATED AT 600DEGREES. THE SLIGHTLY MORE COMPLEX BEHAVIOR OF CA PHOSPHATE IS ALSO DESCRIBED. THE LINEWIDTHS AND 2ND MOMENTS ARE GIVEN AS WELL AS THE CALCD. INTERPROTONIC DISTANCES.

BREN   S.B.

Acc. Nr.: _AN0104123_

Ref. Code: _ZR9003_

4.9

TITLE-- ANNOUNCEMENT OF THE COMMITTEE ON LENIN AND STATE PRIZES, U.S.S.R.

NEWSPAPER-- IZVESTIYA, MAY 28, 1970, P 4, COLS 1-5

ABSTRACT-- NINETY ONE BASIC AND APPLIED RESEARCH WORKS HAVE BEEN NOMINATED FOR THE STATE PRIZES. TWO OF THESE, "THE MULTI-PURPOSE INDUSTRIAL HELICOPTER KA-26", BY N. I. KAMOV, V. B. AL.PEROVICH, V. B. BARSHEVSKIY, A. A. DMITRIYEV, G. I. IOFFE, M. A. KUPFER, L. A. POTASHNIK, N. N. PRIOROV, A. G. SATAROV, I. M. VEDENEYEV, S. B. BREN, AND V. A. NAZAROV, AND "THE DEVELOPMENT OF TURBOFAN JET ENGINES NK-8 AND NK-8-4, AND THE DEVELOPMENT AND REDUCTION TO SERIAL PRODUCTION A SYSTEM OF TECHNOLOGICAL PROCESSES WHICH ASSURED WIDE USES FOR TITANIUM ALLOYS", BY N. D. KUZNETSOV, M. T. VASILISHIN, V. A. KURGANOV, P. M. MARKIN, V. D. RADCHENKO, P. A. SUKHOV, A. A. MUKHIN, V. G. SHITOV, G. I. MUSHENKO, L. A. SHKODO, AND G. P. DOLGOLENKO, HAVE BEEN SUBMITTED BY THE MINISTRY OF THE AVIATION INDUSTRY.

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Reel/Frame
19870555

4

Acc. Nr.: AN0104123

"A SERIES OF INVESTIGATIONS INTO THE DYNAMICS OF A BODY WITH FLUID-FILLED CAVITIES", /65-68/, BY N. N. MOISEYEV, A. A. PETROV, V. V. RUMYANTSEV AND F. L. CHERNOUS'KO AND "ULTRA HIGH PRECISION JIG BORING MILLS WITH 1,000 X 1,600 AND 1,400 X 2,240 MM PLATENS", BY A. I. KIR'YANOV, V. G. ABRAMOVICH, I. V. GUTKIN, A. S. ALIMPIYEV, G. B. PAUKOV, AND A. S. YEGUDKIN, HAVE BEEN SUBMITTED BY THE COMPUTATION CENTER OF THE ACADEMY OF SCIENCES AND THE MINISTRY OF THE MACHINE TOOL CONSTRUCTION AND TOOL INDUSTRY, RESPECTIVELY.

"THE RADICALLY IMPROVED MELTING TECHNOLOGY OF CRITICAL-PURPOSE HIGH-ALLOY STEELS AND ALLOYS OF IMPROVED QUALITY ACHIEVED BY THE INERT GAS TREATMENT OUTSIDE THE FURNACE", BY YU. V. GERASIMOV, O. M. CHEKHOMOV, N. V. SIDOROV, S. K. FILATOV, B. A. CHEREMNYKH, R. M. KHAYRUTDINOV, I. P. BARMOTIN, L. K. KOSYREV, K. P. BAKANOV, N. N. VLASOV, P. I. MELIKHOV, AND N. A. TULIN, HAS BEEN SUBMITTED BY THE ZLATOUST METALLURGICAL PLANT.

2/2

K2

Reel/Frame

19870556

1/3   019   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--NITROGEN CONTAINING BISHETEROCYCLIC SYSTEMS. II.   NATURE OF THE
INFLUENCE OF THE 2,BENZIMIDAZOLYL RADICAL -U-
AUTHOR-(05)-KOLODYAZHNAYA, S.N., SIMONOV, A.M., KOLODYAZHNYY, YU.V.,
OSIPOV, O.A., BREN, V.A.
COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIXL. SOEDIN. 1970, (2), 238-44

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, UV SPECTRUM, HETEROCYCLIC NITROGEN COMPOUND,
BENZIMIDAZOLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1169   STEP NO--UR/0409/70/000/002/0238/0244

CIRC ACCESSION NO--AP0054070
                    UNCLASSIFIED

2/3   019   UNCLASSIFIED   PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0054070

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE QUATERNARY SALTS ESP. OF
1,ARYL, 3,(BENZIMIDAZOL,2,YL)BENZIMIDAZOLIUM UNDERGO RING OPENING
REACTIONS WITH WEAK BASES (SUCH AS NH SUB3 IN PYRIDINE) AT ROOM TEMP.
THE SALTS WITH A FREE NH GROUP (I.E., WITHOUT THE 1,ARYL SUBSTITUENT)
REACT SIMILARLY. NO YLIDE FORMATION WAS FOUND.   THE RING OPENING
PRODUCTS DEFORMYLATED BY HEATING.   THE UV AND IR SPECTRA OF VARIOUS
STARTING COMPDS., PRODUCTS, AND INTERMEDIATES WERE RECORDED. A CH SUB2
GROUP BETWEEN THE TWO IMIDAZOLE RINGS INCREASES STABILITY. THE RINGS
ARE THEN OPENED ONLY IN THE PRESENCE OF STRONG BASES AT ROOM TEMP.; THE
PRODUCTS ARE RECYCLIZED IN ACID MEDIUM. THE PROTONIZATION CONSTS. OF PK
SUBA 1 AND PK SUBA2 OF MODEL COMPDS. WERE MEASURED IN MECN. THE
FOLLOWING VALUES (7-7.5 HIGHER THAN THOSE MEASURED IN WATER) WERE
OBTAINED FOR N,(,1,METHYLBENZIMIDAZOL,2,YL,SUBSTITUTED COMPDS. (COMP.,
PK SUBA1, PK SUBA2, AND M.P. GIVEN): IMIDAZOLE, 11.46, 5.34,-;
BENZIMIDAZOLE, 9.91, 5.01,-; PYRAZOLE, 9.59, -,91-20DEGREES; INDAZOLE,
8.80, -, 171-20DEGREES; FOR N,(1,METHYLBENZIMIDAZOL,2,YL,METHYLENE
SUBSTITUTED COMPDS.: IMIDAZOLE, 13.73, 9.25, 150DEGREES; BENZIMIDAZOLE,
12.58, 9.21, 165-6DEGREES; PYRAZOLE, 12.27, 4.29, 109.5-10.0DEGREES;
INDAZOLE, 12.03, 4.72, 167-8DEGREES; FOR SUBSTITUTED BENZIMIDAZOLES:
N,ET, 13.22,-,-; N,PR, 13.22,-,-.   THE QUATERNARY SALTS WERE PREPD. BY
MELTING AT 140-50DEGREES EQUIMOLAR AMTS. OF N,ALKYLBENZIMIDAZOLE WITH
2,CHLORO OR 2, (CHLOROMETHYL)BENZIMIDAZOLE.

UNCLASSIFIED

3/3   019   UNCLASSIFIED   PROCESSING DATE--09OCT70
IRC ACCESSION NO--AP0054070
ABSTRACT/EXTRACT--THUS, THE FOLLOWING DERIVS. OF
N,(BENZIMIDAZOL,2,YL),O,PHENYLENEDIAMINE WERE PREPD. (M.P. GIVEN):
N,ME,N,FORMYL, 207-8DEGREES; N,ME, 226-7DEGREES; N,PH, 268-9DEGREES;
SIMILARLY, N,PH AND N,ET,N PRIME,(1,METHYLBENZIMIDAZOL,
2,YL,O,PHENYLENEDIAMINES, M. 183-4DEGREES AND 222-3DEGREES, RESP., WERE
OBTAINED.   N,METHYL,N,FORMYL,N PRIME,(1,METHYLBENZIMIDAZOL,2,YL,
METHYLENE),O,PEHNYLENEDIAMINE, M. 164-5DEGREES WAS PREPD.

UNCLASSIFIED

USSR   UDC 612.821.6+612.822.3

BRENDSTED, A. N., Institute of Evolutionary Physiology and Biochemistry imeni
I. M. Sechenov, Academy of Sciences USSR, Leningrad

"The Problem of EEG Changes in Children at Play"

Abstract: A group of 6- and 7-year-old children was tested to find the rela-
tionship between occurrence of theta-waves and their level of emotional stress
in a play situation. The children, including boys and girls, were asked to
assemble a toy truck. A comparison of changes in their EEGs showed that the
greater the child's motivation, the more pronounced the changes in his brain
wave pattern. Children who exhibited the most enthusiasm, interest, and
creativity toward the assignment had EEGs characterized by a significant and
prolonged rise in the theta-index. Children who displayed moderate or little
interest had far lower and the lowest theta-indexes, respectively. The data
also revealed that the emotional stress which children experience during play
is sufficient to cause shifts to the theta-rhythm, while, in adults, this
shift occurs under great mental and emotional stress.

1/1

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Communications

USSR   UDC: 621.37/.39(076)

BERG, A. I., BRENEV, I. V., YAROTSKIY, A. V.

"Radio Engineering, Electronics and Electrical Communications"

V sb. Mashinostroyeniye. Avtomat. upr. mashinami i sistemami mashin. Radio-
tekhn., elektronika i elektrosvyaz' (Machine Building. Automatic Control
of Machines and Machine Systems. Radio Engineering, Electronics and Electrical
Communications--collection of works), Moscow, "Nauka", 1970, pp 287-427
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A20)

Translation: The authors survey the history of the development of radio
and electrical communications, as well as the present state of radio elec-
tronics and electrical communications in the Soviet Union. A. K.

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USSR   UDC: 621.371.2:551.510.52

BRENGAUZ, G. YE.

"Concerning the Effect of the Geomagnetic Field on the Direction of Propagation of Low-Frequency and Extremely-Low Frequency Waves in the Ionosphere"

Tr. Tsentr. aerol. observ. (Works of the Central Aerological Observatory), 1970, vyp. 96, pp 75-83 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A258)

Translation: The author considers cases of propagation of long waves and extremely long waves in the ionosphere with regard to the effect of a mixture of ions of various types: propagation of Alfven waves, waves with frequencies between the gyrofrequencies of protons ΩH^+ and oxygen ions ΩO^+, and waves in the whistler range. New expressions are used for the coefficient of refraction of ordinary waves under these conditions. Tables and graphs are given along with the calculations. Four illustrations, bibliography of six titles. V. U.

1/1

UNCLASSIFIED   PROCESSING DATE--20NOV70

TITLE--PROPAGATION OF MAGNETOACOUSTIC WAVES IN AN INHOMOGENEOUS ISOTHERMAL
ATMOSPHERE -U-

AUTHOR--BRENGAUZ, V.D.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHINIKA ZHIDKOSTI I GAZA,
JAN.-FEB. 1970, P. 3-9.

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ACOUSTIC PROPAGATION, WAVE PROPAGATION, MAGNETOACOUSTIC
EFFECT, ISOTHERMAL FLOW, MAGNETIC FIELD, GRAVITATION ACCELERATION,
FREQUENCY STABILITY, ACOUSTIC REFLECTION, PLASMA WAVE REFLECTION,
REFRACTIVE INDEX, WAVE GUIDE PROPAGATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1456   STEP NO--UR/0421/70/000/000/0003/0009

CIRC ACCESSION NO--AP0112450
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0112450 UNCLASSIFIED PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. STUDY OF THE BEHAVIOR OF SMALL DISTURBANCES IN AN INHOMOGENEOUS ISOTHERMAL ATMOSPHERE IN THE PRESENCE OF A UNIFORM MAGNETIC FIELD NORMAL TO THE GRAVITATIONAL ACCELERATION. THE INFLUENCE OF THE MAGNETIC FIELD ON THE FREQUENCY SPECTRUM OF VERTICALLY PROPAGATING WAVES IS ANALYZED, AND THE CONDITIONS FOR THE PRESENCE OF TOTAL INNER REFLECTION LEVELS IN THE ATMOSPHERE ARE OBTAINED. WAVE PROPAGATION IS ANALYZED IN DETAIL FOR SEVERAL VERSIONS OF THE RELATION BETWEEN THE SQUARE OF THE EFFECTIVE REFRACTIVE INDEX AND THE HEIGHT. THE POSSIBLE EXISTENCE OF WAVEGUIDE IS DETERMINED. THE CONDITIONS UNDER WHICH FUNDAMENTAL SOLUTIONS PROVIDE A DESCRIPTION OF THE FIELDS IN GEOMETROOPTICAL APPROXIMATION ARE OBTAINED. THE FUNDAMENTAL SOLUTIONS OF THE CORRESPONDING EQUATIONS FOR A STRATIFIED INHOMOGENEOUS ANISTROPIC PLASMA IN MHD APPROXIMATION ARE EXPRESSED IN TERMS OF SPECIAL FUNCTIONS FOR THE CASE WHERE THE UNIFORM MAGNETIC FIELD, THE NONUNIFORMITY GRADIENT, AND DIRECTION OF PROPAGATION ARE PARALLEL AND FOR THE CASE WHERE PROPAGATION OCCURS ALONG THE NONUNIFORMITY GRADIENT NORMAL TO THE MAGNETIC FIELD.

UNCLASSIFIED

USSR

UDC 531.781.2+536.5:658.62.011.56

BEKLEMISHCHEV, A. I., BLOKIN-MECHTALIN, YU. K., BRENNERMAN, V. M., KUZNETSOV, A. A., LEBEDEVA, A. I., SHARIY, K. A.

"Information Measuring System for Automating Deformation and Temperature Measurements in Testing Structures for Strength"

V sb. Ustroystva i elementy sistem avtomatiz. nauch. eksperimentov (Devices and Elements of Automation Systems for Scientific Experiments -- Collection of Works), Novosibirsk, "Nauka", 1970, pp 169-172 (from Referativnyy Zhurnal, Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.145)

Translation: The system includes a digital measuring device, a device for transducer commutation, a centralized computer system and a device for contact with the object. The basic characteristics of the system are: number of transducers connected 2500 (2000 tensometers and 500 thermocouples); range of measuring deformation $\pm 1 \cdot 10^{-5} - \pm 0.5 \cdot 10^{-2}$ relative units; temperature measurement range 0-375°C, 0-750°C and 0-1250°C; the size of the scale of the measuring device is 1000 units; rate of interrogation is 30 transducers per second for each of the channels; the reduced maximum error (without considering transducer error) is 1%; length of measurement distance is up to 150 m.

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USSR

BRESLAV, E., Meditsinskaya Gazeta, 18 Oct 72, p 2

We consider therapy without being taken away from production to be most rational. It is well-known that during the time they are in a psychiatric hospital, patients develop dependent attitudes and the capital they accumulate during the time of free treatment may serve as a stimulus to abuse alcohol after they are discharged from the hospital.

The development of an aversion to alcohol is based on the conditioned reflex mechanism. Under the special "hothouse" conditions of the hospital, a less stable reflex is developed than in the dispensary and frequently, it is completely extinguished because the living conditions differ sharply from the hospital situation.

In addition, in economic terms, such therapy is expensive to the state. The cost of a bed-day in the psychiatric hospital where victims of alcoholism are situated fluctuates between 4 rubles and 5 rubles 60 kopecks.

All this forced us to think of new forms and methods of therapy in conditions approximating those of normal life with a full, regular labor load.

After familiarization with the work of the narcology department in the city of Podol'sk, Moscow Oblast, on the initiative of the Vasileostrovskiy Rayon Committee of the CPSU with active participation of the administration of the Sevkabel' Plant and rayon medical workers, an experimental

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USSR

BRESLAV, E., Meditsinskaya Gazeta, 18 Oct 72, p 2

department for treating victims of alcoholism on voluntary principles was organized at one of the industrial enterprises of the city. It has been working for 18 months, and is one of the departments of the psychoneurological hospital No 7 imeni Academician I, P. Pavlov.

The Sevkabel' Plant allocated and prepared quarters, while staffs, medical equipment, food and treatment were secured through public health funds. The plant personnel division registers all persons entering treatment as temporary employees, and they receive wages according to the wage scale, on the same basis of primary plant workers. Parts of their earnings are deducted to a special hospital account and are expended to subsidize the department. Persons who have been treated rec ive 30% of the amount earned upon discharge. A special shop was not singl l out for the labor therapy, those undergoing treatment were put into the brigades and shifts of different shops at the plant.

This helped to instill a feeling of comradeship in those in the department, an awareness of their responsibility, the significance and importance of their labor, and a certain worker's pride in the enterprise which had become "their own." The best indicator of this is the fact that of the 290 people who went through therapy during the year, 32 stayed on to work at the Sevkabol' Plant.

3/5

USSR

BRESLAV, E., Meditsinskaya Gazeta, 18 Oct 72, p 2

We would like ot take note of the great deal of work done by party and trade union organizations of the enterprise with plant workers. They explained the importance of the task assigned and asked that those undergoing treatment be met with good will in the collective and helped to overcome their grave illness.

In order to make the therapy effective, the time spent in the department was extended to 3-3.5 months. This was dictated by characteristics of production and the necessity of combining labor and anti-alcohol therapy over a prolonged period.

The primary difficulty for the collective of medical workers was the fact that therapy had to be conducted for both the morning and evening shifts of workers. The collective was able to handle this problem. Armed with all the methods of psychotherapy, psychoprophylactics, and psychohygiene in the broad sense of these concepts, personnel were able to organize the patients into a disciplined collective, using "small group" procedures and other types of collective and group psychotherapy.

A council of patients has been established in the department and works actively, and the patients are partially on self-service. The first steps have been taken to organize a club for those who have been discharged from the dispensary but continue to maintain contact with the collective and personnel who helped them rid themselves of this grave vice which turned

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USSR

BRESLAV, E., Meditsinskaya Gazeta, 18 Oct 72, p 2

into an illness.

After therapy in permanent psychiatric hospital No 5, the rate of recidivism was 35%, while after outpatient treatment at the dispensary it was 24%.

Of course, it should be taken into account that outpatient is given to persons in the early stages of alcoholism, with still incipient social degradation. The work of such departments involves a number of difficulties. For example, patients sent to the department are entered on temporary work at another industrial enterprise without being discharged from their primary place of work, and after therapy they ordinarily return to their old enterprise. Now, in connection with the abolition of hospital records for persons being treated for alcoholism, the question arises, how can we preserve continuity of time in service? The matter of wages is not clear either. After all, only 30% of the wages are paid to the patients or their relatives, and the rest of the money is transferred to the special hospital account. It is evident that with the abolition of hospital records, certain changes should be made in the system of wages.

But as for the fact that the creation of such departments is a realistic way to combat alcoholism, we have no doubt.

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MEDICINE

Aerospace Medicine

USSR

BRESLAV, I., Doctor of Medical Sciences, Central Scientific Research Institute of Sanitary Education

"Creating an Artificial Atmosphere"

Yerevan, Kommunist, 4 Sep 70, p 3

Extract: The 20th Century is an era in which man is persistently trying to inhabit previously uninhabitable regions. Extraterestrial voyages of spaceships have almost become commonplace. Aquanauts live for weeks in underwater habitats. In all probability, a "geocosmic" missile will soon descend into the earth's depths. However, neither in outer space nor in the water nor underground is there an atmosphere of the type to which we are accustomed. What is man to breathe under such circumstances?

If he takes air with him, this air will soon deteriorate, because carbon dioxide will replace oxygen. It is necessary to regenerate (restore) constantly the composition of the air utilized. For short voyages, it is sufficient to take tanks with compressed or liquid oxygen and continuously add this gas to the atmosphere of the inhabited cabin. Carbon dioxide can be absorbed by soda or other substances. However, it is difficult to get enough oxygen for a long

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period, since each person consumes some 900 liters of this gas per day on the agerage.

Many chemical and physicochemical methods of air regeneration have been developed and partially tested. For example, through electrolysis it is possible to decompose water and obtain oxygen. But it is believed that the so-called closed ecological system is most suitable for space travel. In essence, this system represents our earth in miniature. Green plants (for example, algae) are used to supply oxygen and remove carbon dioxide. This system was recently used by Soviet scientists in an experiment. Three investigators lived for 3 months in a hermetically sealed room. An especially designed greenhouse section supplied them with oxygen and fresh food.

Many difficulties must be overcome before man will be able to embark on month- and year-long trips to various planets and live on them. Complex ecological systems will probably be created. Greenhouses functioning as oxygen factories and carbon dioxide consumers will replace forests, gardens, and orchards. The metabolic cycle will be supplemented with portable farms on which rabbits,

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chickens, and other animals will be raised. The animals will consume a portion of the oxygen, but at the same time they will supply additional fertilizers and carbon dioxide for the plants, as well as fresh meat and eggs for people. Space explorers will be able to live and work for any length of time in these extra-planetary settlements or colonies.

What should the composition of the artificial atmosphere be? It would seem that the simplest thing is to make it similar to the natural atmosphere. For example, the normal composition of air is maintained in submarines. The Soviet cosmonauts in our first spaceships also breathed air. The atmospheric regeneration system is closed, inhabited compartments is designed to maintain normal oxygen concentration and prevent accumulation of carbon dioxide.

However, the problem is not as simple as it may seem. The fact is that oxygen alone is sufficient for breathing. Nitrogen, which constitutes 4/5 of the air by volume, essentially functions only as a diluting gas. Is it not possible to breathe pure oxygen and, to prevent an excess, reduce the total pressure by a factor of five (to keep the partial pressure of oxygen at the normal level)? Tests with animals and human beings have shown that such an environment is

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completely suitable for breathing. Its use considerably simplifies the whole
problem of the artificial atmosphere. However, this has its shortcomings: fire
danger considerably increases in a pure oxygen medium. From our school tests we
should remember that an ordinary iron wire blazes up with a bright flame when it
is placed in pure oxygen. We also have fresh in our memory the tragic death of
the American astronauts during ground tests of their space capsule.

It is therefore recommended that the oxygen be diluted, not with nitrogen
however, but with helium, an inert gas which is present in trace amounts in the
earth's atmosphere. Helium is almost seven times lighter than nitrogen, and
this is highly advantageous from the technical standpoint. Helium offers still
one more advantage. A state of weightlessness develops during space flights. In
this situation, the body can no longer dissipate heat through convection, that is,
through replacement of warm air with the heavier cold air. Thus, the cosmonaut
may suffer from overheating. Helium is a good conductor of heat and can effec-
tively cool the surface of the human body.

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BRESLAV, I.S.

Mathematic analysis

MATHEMATIC ANALYSIS OF THE REGULATION OF THE HUMAN RESPIRATORY SYSTEM TO HYPOXIA AND HYPERCAPNIA

[Article by ... I. S. Breslav, V. D. Glebovskiy, and A. M. Shmeleva; ..., Russian, No 11, 1972, submitted 6 February 1972, pp 1109-1118]

Man's ventilatory reactions to the inhalation of hypoxic and hypercapnic mixtures are studied in 160 experiments and are mathematically processed by multiple correlation and regression analysis. Equations were obtained that characterize the quantitative relations between the minute volume of respiration and the parameters of the gaseous composition of the external and internal environment. These equations can be used to assess the relative importance of hypoxic and hypercapnic stimuli in the regulation of human breathing.

One of the difficult problems in the physiology of respiration is to evaluate the factors responsible for the volume of pulmonary ventilation. The difficulty is occasioned by the fact that none of the stimuli that acts directly or indirectly influence the activity of the respiratory center acts in isolation. For example, when the pH and CO_2 tension change, the ventilatory response to hypoxemia also changes. The Bohr (?) and Haldane effects must also be taken into account. However, the ventilatory reactions must be used to assess the chemical composition of the blood necessary shifts in the apparatus that regulates respiration.

They /4/ formulated the fundamental mathematical relationships between ventilation and a number of factors that affect it, notably tension of the blood respiratory gases. These relationships were developed by Gradina /3, 9, 10/ who was able to use them to create a model of the "respiratory chemostat". The mathematical approach to analysis of the regulation of respiration during muscular exertion and change in the gaseous composition of the atmosphere was followed by several physiologists /11-15/.

However, the possibilities provided by a quantitative characterization of the systems regulating respiration, use of biological systems in

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Procedure

Experiments were performed on 16 sanitary persons (9 males and 7 females) age 18 to 32. We used a complex apparatus [...] volume of respiration, CO_2 content of alveolar air [...] and oxygenation of arterial blood (with an O_2-N_2 oxygen meter).

In such experiments the subject first inhaled air (an [...] in nitrogen) and then a mixture with a changed composition: mixtures were varied by hypoxia (18, 15, 12, or 9 percent O_2 in nitrogen), percapnia (0.5, 1, 2, 3, or 5 percent CO_2 in air), and a combination containing a reduced quantity of oxygen with CO_2 added. Thus, we investigated the entire range of changes in concentration of respiratory gases compatible with man's vital processes.

The gaseous mixture was inhaled for 10 to 15 min. Analysis of the dynamics of the parameters recorded showed that they became stationary by any of the above mixtures after 10 min, an indication that a steady state had been achieved by this time. Therefore, our report included the results of analysis of the values recorded at the 10th minute of inhalation of the corresponding gaseous mixture.

The physiological reactions were mathematically described by the results of multiple correlation and regression analysis [5, 6, 7].

Two kinds of equations were sought, one for the absolute values of the variables, the other for the normalized variables. The second made it possible to evaluate the contribution (weight) of each variable in a given function. Normalization of the following kind was used:

$$x' = \frac{x - M_x}{\sigma}$$

where x' is the normalized value of the variable, x is the absolute value of the variable, M_x is the average value of the variable in the experiment, [...]

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"Voluntary Control of Breathing in Altered Gaseous Media"

Abstract: Two series of experiments were performed to determine the effect of the volitional factor on the respiratory reactions of man to hypoxia and hypercapnia. One series involved a level of lung ventilation normal for each person, the other an increased level of ventilation. When the subjects were verbally instructed to maintain their normal minute volume, they were able to breathe not only ordinary air and a hyperoxic mixture but also moderate hypoxic and, to a lesser degree, hypercapnic mixtures. In pressure-chamber experiments at a simulated altitude of 3,600 m, the subjects' ability to control their breathing deteriorated markedly. A study of newcomers to high mountains (Pamirs) revealed the same phenomenon as in the pressure-chamber experiments: somewhat higher oxygenation of the blood than with natural breathing and invariable disruption of the ventilation regime in response to hypoxic mixtures. Natives of the Pamirs, on the other hand, were generally able to maintain the prescribed level of ventilation; oxygen saturation of the blood with natural breathing was virtually the same as with restricted
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